

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

VERMETTE & CO.  
Box 40, Granville Square  
230-200 Granville Street  
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CANADA

INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

|   |  |  |
|---|--|--|
| Applicant's or agent's file reference<br>1491-143 |  | Date of mailing<br>(day/month/year)<br>21/09/2004                                |
| International application No.<br>PCT/CA 03/01514  |  | PAYMENT DUE<br>within 45 <del>days</del> /days<br>from the above date of mailing |
| Applicant<br>POWERTECH INDUSTRIES INC.            |  | International filing date<br>(day/month/year)<br>01/10/2003                      |

1. This International Searching Authority

- (i) considers that there are 2 (number of) inventions claimed in the international application covered by the claims indicated ~~below~~ on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~below~~ on the extra sheet:

- (ii) ☒ has carried out a partial International search (see Annex) ☐ will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:  
see annex

- (iii) will establish the international search report on the other parts of the International application only if, and to the extent to which, additional fees are paid

2. The applicant is hereby invited, within the time limit indicated above, to pay the amount indicated below:

EUR 945.00 x 1 = EUR 945.00  
Fee per additional invention number of additional inventions total amount of additional fees

Or, \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

The applicant is informed that, according to Rule 40.2(c), the payment of any additional fee may be made under protest, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. ☐ Claim(s) Nos. \_\_\_\_\_ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority



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Authorized officer

Yannick Gouby

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This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9

Pulse combustor with plurality of tail pipe regions  
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2. claims: 10-11

Burner with hollow tube and conic deflector  
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The document US-A1-6035810 is regarded as the closest prior art with regard to the subject-matter of independent claim 1 and discloses a pulse combustor comprising two spaced apart outer plates, said outer plates having flat outer regions, conical regions inside of the flat regions and central hubs, wherein the volume between said conical regions of said plates defines a combustion chamber (see column 4, lines 10-31). Moreover, a burner (102) is coupled to one of said hubs in order to ignite a fuel air mixture in said combustion chamber and the plates have spiral coolant passageways therein for conducting cooling fluid to cool expanding gases travelling between said plates through said tailpipe region.

The subject-matter of independent claim 1 differs from the disclosure of D1 in that a plurality of intermediate plates are provided in order to form a plurality of tailpipe regions. Such a provision can be considered as a contribution over the prior art and considered as the STF (Special Technical Features as defined by Rule 13(2) PCT) of the first invention. The STF is aimed at providing a scalable power output for the pulse combustor.

The subject-matter of independent claim 10 differs from the disclosure of D1, in that it discloses a burner provided with a an elongated hollow tube including a plurality of nozzle openings and a parabolic cone mounted at its end. Such a provision can be regarded as the STF of the second invention and is aimed at providing an uniform distribution of the combustion gases emanating from the burner.

From the above, neither the two objective problems that can be formulated nor the different solutions defined by STF 1 and 2 allow for a relationship to be established among said subjects. The application hence does not meet the requirement of unity of invention as defined by Rule 13(1) and (2) PCT.

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.   
see 'Invitation to pay additional fees'
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
| Y          | US 6 035 810 A (MOVASSAGHI MEHRZAD)<br>14 March 2000 (2000-03-14)<br>figures 1,4,15<br>column 4, line 10 - line 25<br>column 6, line 45 - line 52                    | 1-5,8                 |
| Y          | WO 00/12934 A (CHATO JOHN D ; CLEAN ENERGY<br>COMBUSTION SYSTEM (CA))<br>9 March 2000 (2000-03-09)<br>page 4, line 5 - line 10<br>page 6, line 8 - line 10; figure 2 | 1-5,8                 |
| A          | WO 01/53750 A (LOCHINVAR CORP)<br>26 July 2001 (2001-07-26)<br>figures 6,12<br>page 20, paragraph 5 - page 21, paragraph 1   | 6,7                   |
| A          | US 6 000 930 A (KELLY JOHN T ET AL)<br>14 December 1999 (1999-12-14)<br>column 5, line 31 - column 6, line 31;<br>figure 9   | 9                     |
| A          | EP 0 950 853 A (BRAY TECHNOLOGIES PLC)<br>20 October 1999 (1999-10-20)<br>paragraph '0034!; figure 4   | 6,7                   |
| A          | US 4 968 244 A (MOVASSAGHI MEHRZAD)<br>6 November 1990 (1990-11-06)<br>column 3, line 15 - column 4, line 14;<br>figure 1  | 1                     |

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

**Patent Family Annex**  
Information on patent family members

International Application No  
PC 03/01514

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s)   | Publication<br>date  |
|---|---|---------------------|--|--|
| US 6035810                                | A | 14-03-2000          | AT 407293 B<br>AT 910396 A<br>AU 4781296 A<br>WO 9720171 A1<br>CH 693464 A5<br>DE 19681671 T0<br>DK 72598 A<br>GB 2323662 A , B<br>JP 2000500562 T<br>SE 522084 C2<br>SE 9801925 A | 26-02-2001<br>15-06-2000<br>19-06-1997<br>05-06-1997<br>15-08-2003<br>15-10-1998<br>30-06-1998<br>30-09-1998<br>18-01-2000<br>13-01-2004<br>29-07-1998 |
| WO 0012934                                | A | 09-03-2000          | AU 5403599 A<br>WO 0012934 A1<br>US 6464490 B1   | 21-03-2000<br>09-03-2000<br>15-10-2002   |
| WO 0153750                                | A | 26-07-2001          | AU 2777601 A<br>AU 2781001 A<br>WO 0151853 A1<br>WO 0153750 A1<br>US 2002092482 A1<br>US 2003005892 A1   | 24-07-2001<br>31-07-2001<br>19-07-2001<br>26-07-2001<br>18-07-2002<br>09-01-2003   |
| US 6000930                                | A | 14-12-1999          | NONE   |  |
| EP 0950853                                | A | 20-10-1999          | EP 0950853 A2  | 20-10-1999   |
| US 4968244                                | A | 06-11-1990          | CA 1319885 C   | 06-07-1993   |

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# PATENT COOPERATION TREATY

JLA

RECEIVED MAY 25 2004

**PCT**

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

VERMETTE & CO  
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## NOTIFICATION OF RECEIPT OF DEMAND BY COMPETENT INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence  
and Administrative Instructions, Section 601(a))

Date of mailing  
(day/month/year) 21-05-2004

Applicant's or agent's file reference  
1491-143

### IMPORTANT NOTIFICATION

International application No.  
PCT/CA03/01514

International filing date (day/month/year)  
01/10/2003

Priority date (day/month/year)  
01/10/2002

Applicant

**POWERTECH INDUSTRIES INC.**

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

27/04/2004

2. This date of receipt is:

- ☒ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).  
☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).  
☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is after the expiration of 19 months from the priority date. Consequently, in respect of some Offices, the demand does not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)) and the acts for entry into the national phase must therefore be performed within 20 months from the priority date (or later in some Offices). However, in respect of some other Offices, the time limit of 30 months (or later) may nevertheless apply. See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

- ☐ (If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/



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**KORVING J D**



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